

UNITED STATES DISTRICT COURT  
DISTRICT OF TEXAS

CONSTELLATION DESIGNS, LLC,

Plaintiff,

v.

LG ELECTRONICS INC, LG  
ELECTRONICS U.S.A., INC., AND LG  
ELECTRONICS ALABAMA, INC.

Defendants.

**JOINT EXHIBIT LIST**

CASE NO. 2:21-cv-00448-JRG

PRESIDING JUDGE	PLAINTIFF'S ATTORNEY	DEFENDANTS' ATTORNEY
Hon. Rodney Gilstrap	Jason D. Cassady	Michael McKeon
TRIAL DATE(S)	COURT REPORTER	COURTROOM DEPUTY
July 5 – July 11, 2023	Shawn McRoberts	Andrea Brunson

Joint No.	Date Offered	Marked	Admitted	Description of Exhibits* and Witnesses
JTX-001	7/5/2023		X	U.S. Patent No. 8,842,761 September 23, 2014 CD-0001032-CD-0001086
JTX-002	7/5/2023		X	U.S. Patent No. 10,693,700 June 23, 2020 CD-0001290-CD-0001348
JTX-003	7/5/2023		X	U.S. Patent No. 11,019,509 May 25, 2021 CD-0001537-CD-0001597
JTX-004	7/5/2023		X	U.S. Patent No. 11,018,922 May 25, 2021 CD-0001349-CD-0001536
JTX-005				Provisional Patent Application No. 60/933,319 June 5, 2007 CD-0026624-CD-0026634
JTX-006	7/5/2023		X	M. F. Baroum, C. Jones and M. Fitz, "Constellation Design via Capacity Maximization," 2007 IEEE International Symposium on Information Theory, Nice, France, 2007, pp. 1821-1825, doi: 10.1109/ISIT.2007.4557486 CD-0026485-CD-0026489

\*Include a notation as to the location of any exhibit not held with the case file or not available because of size.

**JOINT EXHIBIT LIST – CONTINUATION**

CONSTELLATION DESIGNS, LLC V. LG ELECTRONICS, INC., ET AL.				CASE NO. 2:21-cv-00448-JRG
Joint No.	Date Offered	Marked	Admitted	Description of Exhibits* and Witnesses
JTX-007	7/6/2023		X	ATSC 3.0 A/322 Physical Layer Protocol (2017) CD-0031090-CD-0031351
JTX-008				J. S. Kwak, J. G. Andrews and A. Lozano, MIMO Capacity in Correlated Interference-Limited Channels, 2007 CD-0038238-CD-0038242
JTX-009				'662 Provisional Application CD-0026635-CD-0026746
JTX-010	7/6/2023		X	FUTURECAST Constellation/BIL dated February 5, 2014 LGCD_00072229-LGCD_00072237; ATSC-00007455- ATSC-00007463
JTX-011				A Non-uniform Constellation Mapping Method for 13/15 code rate (Jeong Ex. 17) LGCD_00199545-LGCD_00199552
JTX-012	7/10/2023		X	A New Constellation Mapping Method for 5/15 code rate (Jeong Ex. 16) LGCD_00195236-LGCD_00195245
JTX-013	7/6/2023		X	Source Code Excerpts To be determined by the parties
JTX-014	7/6/2023		X	Recommended Practice: Guidelines for the Physical Layer Protocol (A/327), Doc. A/327:2021, 25 January 2021 CD-0000482-CD-0000618
JTX-015	7/6/2023		X	LG, Sales Data, c. 2023 (or any updated version produced closer to trial) LGCD_00200963
JTX-016	7/6/2023		X	Canadian Sales Data LGCD_00200930 & LGCD_00200964
JTX-017				FUTURECAST Universal Terrestrial Broadcasting System, Oct. 15, 2013 ATSC-00004386- ATSC-00004428
JTX-018				LG, Comparison between FutureCast and DVB-T2 (Sept. 2014) LGCD_ESI00085629- LGCD_ESI00085632

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Joint No.	Date Offered	Marked	Admitted	Description of Exhibits* and Witnesses
JTX-019				Email from W. Luplow forwarding information sent to the Pearl broadcasting "leadership" "on behalf of the [LG, Zenith, GatesAir] team" 1/5/2015 LGCD_ESI00084016-4020
JTX-020				Spreadsheet showing LG ATSC 3.0 field testing in the United States LGCD_ESI00125318
JTX-021				U.S. Patent No. 8,842,761 Assignment CD-0000931-CD-0000936
JTX-022	7/6/2023		X	Excel spreadsheet - Tabs "AWGN" and "RAYLEIGH"  LGCD_ESI00121309
JTX-023	7/6/2023		X	O22/K8x ATSC3.0 Built-in Demod. Verification result (follow-up report)  LGCD_ESI00266262- LGCD_ESI00266265
JTX-024	7/10/2023		X	Jeong Ex. 8, 8-B, and 8-C - annotations implemented by Mr. Jeong (Excerpt ATSC A/322:2021 Physical Layer Protocol 20 January 2021)  Jeong Ex. 8, 8-B, and 8-C  CD-0000663
JTX-025	7/6/2023		X	Excel spreadsheet - Tabs "V&V" and “북 북 북 북 북 북” (translated ↗ North America Fieldstream) Byeong Kook Jeong Depo. Ex. 14  LGCD_ESI00240016
JTX-026	7/6/2023		X	VSB Receiver License Agreement between Zenith and Toshiba, 8/25/2004 LGCD_00176669-6702
JTX-027				Zenith, VSB Licensing Program (February, 2007) LGCD_00188545-682

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CONSTELLATION DESIGNS, LLC V. LG ELECTRONICS, INC., ET AL.					CASE NO. 2:21-cv-00448-JRG
Joint No.	Date Offered	Marked	Admitted	Description of Exhibits* and Witnesses	
JTX-028	7/6/2023		X	LG3307 Datasheet LGCD_00021060-LGCD_00021100	
JTX-029	7/6/2023		X	LG1213 Datasheet, Version 1.0 – December 9, 2021 LGCD_00020822-LGCD_00021059	
JTX-030	7/10/2023		X	LG Electronics Approval Sheet LGCD_00021277- LGCD_00021422	
JTX-031				Byeongkook Kang Email Subject : [WebEX 북 북 북 북 ] 북 북 ATSC30 북 북 북 북 북 북 북 (북 북 8/26 08북 북 북 북 8/25 16북)  LGCD_ESI00099994- LGCD_ESI00099998	
JTX-032	7/7/2023		X	Price Waterhouse, “Zenith Electronics Corporation Vestigial Side Band Technology Licensing Study,” 12/31/1997 LGCD_00188470-8544	
JTX-033				International Directory of Company Histories, “Zenith Electronics Corporation,” 2000 LUPLOW000408-416	
JTX-034	7/6/2023		X	Zenith-LG VSB Receiver License Agreement, 10/25/2004 LGCD_00175504-519; LGCD_00175722-737	
JTX-035	7/6/2023		X	Zenith-Sharp VSB Receiver License Agreement, 3/21/2005 LGCD_00175568-582; LGCD_00176639-653	
JTX-036	7/7/2023		X	Agreement Among Licensors Regarding the ATSC Standard between Koninklijke Philips Electronics N.V., LG Electronics, Inc., Matsushita Electric Industrial Co., Ltd. et al. July 18, 2007 LGCD_00188379-00188406	
JTX-037	7/6/2023		X	Excerpt of LG’s Response to Interrogatory No. 2 from LG’s Tenth Supplemental Response to First Set of Interrogatories (Nos. 1-15), dated March 21, 2023 No Bates (1 page)	

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Joint No.	Date Offered	Marked	Admitted	Description of Exhibits* and Witnesses
JTX-038				U.S. Patent Assignments CD-0001013-CD-0001024
JTX-039				GX Series TV Owner's Manual LGCD_00000007- LGCD_00000043
JTX-040	7/6/2023		X	G2 and Z2 Series TV Owner's Manual LGCD_00021248- LGCD_00021276
JTX-041	7/7/2023		X	LG 50 Inch Class QNED80 AQA series LED 4K UHD Smart webOS 22 with ThinQ AI TV (50QNED80AQA) Features LGCD_00150581- LGCD_00150593
JTX-042				LG G2 65-inch OLED evo Gallery Edition TV (OLED65G2PUA) Features LGCD_00150777- LGCD_00150791
JTX-043				Zenith Emmy Photograph LGCD_00200347
JTX-044				The Transition to Digital Television in the United States
JTX-045				www.bls.gov_opub_ted_2015_long- term-price-trends-for-computers-tvs-and- related-items
JTX-046				www.statista.com_outlook_cmo_consum- er-electronics_tv-radio- multimedia_television_united-states
JTX-047				www.statista.com_statistics_782217_sm- art-tv-share-by-oem-in-the-us
JTX-048				G1 Series TV Owner's Manual LGCD_00000133- LGCD_00000164
JTX-049	7/10/2023		X	WO 2009/150500 A1 LGCD_00025130- LGCD_00025155
JTX-050				June 2006, ETSI EN 302 307 V1.1.2 LGCD_00025674- LGCD_00025747
JTX-051	7/10/2023		X	U.S. Patent App. Pub. No. 2004/0252791 A1 LGCD_00026589- LGCD_00026673
JTX-052				2016.09.07 ATSC Standard: Physical Layer Protocol (A/322) LGCD_00028866- LGCD_00029123
JTX-053				WO 2014/195303 A1 LGCD_00030528- LGCD_00030638
JTX-054				Sommer, Signal Shaping by Non- Uniform QAM for AWGN Channels and Applications Using Turbo Coding (C. Jones Depo. Ex. 5) LGCD_00032145- LGCD_00032150

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Joint No.	Date Offered	Marked	Admitted	Description of Exhibits* and Witnesses
JTX-055				HLD/LLD ATSC3.0 Presentation (LGCD_00036851- LGCD_00036869)
JTX-056	7/6/2023		X	[B17+] BICM Review (2018.11.22) LGCD_00073963- LGCD_00074003
JTX-057	7/10/2023		X	LG G2 55-inch OLED evo Gallery Edition TV (OLED55G2PUA) Features LGCD_00150762- LGCD_00150776
JTX-058				B17+ Framing Review LGCD_00176916- LGCD_00176951
JTX-059				QNED, NANO, and UQ Series TV Owner's Manual LGCD_00180218- LGCD_00180242
JTX-060	7/10/2023		X	OLED55G3PUA TV Service Manual LGCD_00200021-LGCD_00200104
JTX-061				OLEDXXG3PUA Owner's Manual LGCD_00200105- LGCD_00200133
JTX-062	7/7/2023		X	Bauch, Turbo Modulation and Coding (Burrell Depo. Exs. 2-4) WILEY0000001- WILEY0000001
JTX-063	7/7/2023		X	DeGaudenzi, Turbo-coded (Burrell Dep. Ex 6) WILEY0000009- WILEY0000030
JTX-064				Chindapol, Ritcey - Design, Analysis, and Performance Evaluation... May 2001 (Ex. D to MacPherson Decl) IEEE_00074- IEEE_00087
JTX-065	7/7/2023		X	Cronie - Superposition Coding for Power... June 29, 2007 (Ex. E to MacPherson Decl) IEEE_00100- IEEE_00104
JTX-066				Ngo, Pietrobon, Barbulescu - A New Iterative Decoder for Turbo Codes... April 2006 (Ex. J to MacPherson Decl) IEEE_00199- IEEE_00204
JTX-067	7/10/2023		X	comarktv.com_wp-content/uploads_2019_10_ATSC-3.0-Overview-3-2017-1
JTX-068	7/10/2023		X	2007.01.03 ATSC Digital Television Standard, Parts 1-6 (A/53) LGCD_00188243- LGCD_00188378
JTX-069	7/6/2023		X	Zenith Patent Licensing Program LGCD_00188545- LGCD_00188682
JTX-070	7/7/2023		X	Avanci Platform Agreement (finalized 2023-03-04) (Ahn Ex. 5) LGCD-00200421- LGCD-00200486

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Joint No.	Date Offered	Marked	Admitted	Description of Exhibits* and Witnesses
JTX-071	7/7/2023		X	Avanci Sublicense Agreement LGCD-00200326-LGCD_00200346
JTX-072				2014.09.05 Luplow, The Legend of Television LUPLOW000249- LUPLOW000335
JTX-073	7/10/2023		X	A/300:2023-03
JTX-074	7/10/2023		X	There's a simple reason your new smart TV was so affordable (Sullivan Dep. Ex. 4)
JTX-075				Klenner, Physical Layer Time Interleaving for the ATSC 3.0 System (Ko Depo. Ex. 4)